



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification 7 :</b> <b>C07D 263/58, 413/04, A61K 31/42, C07D 209/34, 401/04, 277/68, 417/04, 235/26, A61K 31/425, 31/4164, 31/40, A61P 25/00</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/29397</b> <b>(43) International Publication Date:</b> 25 May 2000 (25.05.00)
<b>(21) International Application Number:</b> PCT/EP99/08702 <b>(22) International Filing Date:</b> 10 November 1999 (10.11.99)  <b>(30) Priority Data:</b> 98203871.3      13 November 1998 (13.11.98)      EP  <b>(71) Applicant (for all designated States except US):</b> DUPHAR INTERNATIONAL RESEARCH BV [NL/NL]; C.J. van Houtenlaan 36, NL-1381 CP Weesp (NL). <b>(72) Inventor:</b> TOOROP, Gerrit, P. (deceased). <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> FEENSTRA, Roelof, W. [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). VAN DER HEIJDEN, Johannes, A., M. [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). MOS, Johannes [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). LONG, Stephen, K. [GB/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). VISSER, Gerben, M. [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). KRUSE, Cornelis, G. [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). VAN		<b>SCHARRENBURG, Gustaaf, J., M. [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL). TOOROP, Anne, G. (heirss of the deceased inventor) [NL/NL]; C.J. van Houtenlaan 36, NL-1380 AC Weesp (NL).</b>  <b>(74) Agent:</b> MUIS, Maarten; Octrooibureau Zoan BV, P.O. Box 140, NL-1380 AC Weesp (NL).  <b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>

**(54) Title:** NEW PIPERAZINE AND PIPERIDINE COMPOUNDS**(57) Abstract**

The invention relates to a group of novel piperazine and piperidine derivatives of formula (I), wherein:  $S_1$  is hydrogen, halogen, alkyl (1-3C), CN,  $CF_3$ ,  $OCF_3$ ,  $SCF_3$ , alkoxy (1-3C), amino or mono- or di-alkyl (1-3C) substituted amino, or hydroxy; X represents  $NR_3$ , S,  $CH_2$ , O, SO or  $SO_2$ , wherein  $R_3$  is H or alkyl (1-3C);.....Z represents =C or -N; -  $R_1$  and  $R_2$  independently represent H or alkyl (1-3C), or  $R_1$  and  $R_2$  together can form a bridge of 2 or 3 C-atoms;  $R_4$  is hydrogen or alkyl (1-3C); Q is methyl, ethyl, ethyl substituted with one or more fluorine atoms, cyclopropyl - methyl, optionally substituted with one or more fluorine atoms, and salts and prodrugs thereof. It has been found that these compounds have both partial dopamine  $D_2$ -receptor agonism and partial serotonin 5-HT<sub>1A</sub>-receptor agonism mediated activities.

